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HEALTH LOCUS OF CONTROL WITH QUALITY OF LIFE IN DIABETES MELLITUS PATIENTS

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Abstract

Diabetes Mellitus (DM) is a chronic disease characterized by elevated blood glucose levels due to insulin abnormalities, which significantly affects patients' quality of life. One psychological factor that plays an important role in managing chronic illness is *Health Locus of Control* (HLOC), defined as an individual's belief about whether their health is determined by themselves or external factors. This study aimed to analyze the relationship between HLOC and the quality of life of DM patients at Kaliwungu Kudus Community Health Center. Using a correlational analytic design with a cross-sectional approach, the independent variable was HLOC and the dependent variable was quality of life. The research was conducted in February–March 2024, with purposive sampling based on inclusion criteria (patients diagnosed with DM with medical records, aged ≥18 years, and able to communicate well) and exclusion criteria (patients with comorbidities or complications, and those not present during data collection). From a population of 164 patients, 48 respondents met the criteria. The *Multidimensional Health Locus of Control* (MHLOC) and the *WHOQOL-BREF* instruments were used, and data were analyzed with Spearman's rho test. Results showed a significant relationship between HLOC and quality of life (p=0.012; rho=0.358), indicating a weak but positive correlation, meaning that higher HLOC is associated with better quality of life. In conclusion, this study confirms the role of HLOC in improving the quality of life of DM patients, and its findings can provide input for the Kaliwungu Community Health Center in developing services and interventions that support better health outcomes and quality of life for DM sufferers.

I. INTRODUCTION

Diabetes mellitus is a non-communicable disease characterized by elevated blood glucose levels, caused by abnormalities in insulin secretion, insulin action, or both (Zanzibar & Akbar, 2023). The World Health Organization (WHO) estimates that around 422 million people worldwide suffer from diabetes, particularly those living in low- and middle-income countries (World Health Organization, 2023). The prevalence of diabetes in Indonesia, based on medical diagnoses in individuals aged ≥ 15 years, has increased by 2%. However, based on blood glucose tests, the number of people with diabetes has risen to 8.5%. This figure represents the increase in diabetes prevalence in 2013 (Riskesdas, 2018). In Central Java Province, the estimated number of people with diabetes mellitus in 2023 is 624,082, and 101.6% of them have received healthcare services in accordance with standards (Dinkes Jateng, 2023).

Based on data from the Health Profile of Kudus Regency, the estimated number of people with diabetes mellitus in Kudus Regency in 2022 was 17,933, and 92.6% of them received healthcare services according to the standards. In the working area of the Puskesmas (Community Health Center) in

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Kudus Regency, specifically at the Kaliwungu Kudus Puskesmas, the total number of diabetes mellitus cases in 2022 was 1,403 (Health Department of Kudus Regency, 2022).

According to the World Health Organization (WHO), in 2019, diabetes was the direct cause of 1.5 million deaths worldwide, with 48% of these deaths occurring before the age of 70. In addition, approximately 460,000 deaths were attributed to kidney disease caused by diabetes, and about 20% of deaths were related to high blood glucose resulting from cardiovascular disease. The trend of diabetes-related mortality has also shown an increase: from 2000 to 2019, the age-standardized mortality rate due to diabetes rose by 3%, and in low- and middle-income countries, the increase reached 13% (WHO, 2023). In Indonesia, the estimated number of deaths due to diabetes mellitus among individuals aged 20–79 years was 236,711 (Ministry of Health of the Republic of Indonesia, 2022).

The main cause of diabetes in the era of globalization is lifestyle changes influenced by improving economic conditions. The prevalence of diabetes mellitus cases in Indonesia continues to rise. One of the significant risk factors is lifestyle behavior. According to Sustrani (2006), lifestyle patterns associated with the occurrence of diabetes include high consumption of fast food, lack of physical activity, and stress. Other factors that may increase the risk of diabetes include heredity, age, and being overweight.

Diabetes mellitus can lead to complications involving both macrovascular and microvascular blood vessels, as well as nervous system disorders or neuropathy (Soelistijo, 2021). Quality of life is one of the major concerns experienced by diabetes mellitus patients, as the chronic nature of the disease accompanies them throughout their lifetime, significantly affecting their quality of life. To prevent serious complications and mortality among diabetes patients, proper management requires self-care behaviors such as choosing healthy foods, engaging in physical activity, adhering to appropriate medication, controlling blood glucose levels, and improving patients' quality of life. One of the factors influencing quality of life is the Health Locus of Control (Jafari et al., 2023).

This is supported by a study conducted by Ramadhan (2019) on the Relationship between Health Locus of Control (HLOC) and Quality of Life among Diabetes Mellitus (DM) Patients at Citra Husada Hospital, Jember. The results showed a p-value of 0.003, which is ≤ 0.05, indicating that H1 was accepted. It can therefore be concluded that there is a significant relationship between HLOC and the quality of life of DM patients. The correlation coefficient ($r = 0.512$) indicates a moderate positive correlation, meaning that a higher HLOC is associated with a higher quality of life among DM patients.

Based on a preliminary survey conducted by the researcher on November 20, 2023, at Kaliwungu Health Center, Kudus, it was found that the number of patients with diabetes mellitus without complications during the period of February–November 2023 was 164. From interviews with 7 diabetes mellitus patients visiting the health center using the Multidimensional Health Locus of Control (MHLC) questionnaire, it was revealed that 2 patients stated their health condition depended on their own actions in determining how quickly they would recover, 3 patients stated their health condition depended on their family or doctor, and 2 patients stated their improvement depended on God. Data obtained from the WHOQOL-BREF questionnaire showed that 5 patients had a poor quality of life, while 2 patients had a good quality of life.

This study aims to analyze the relationship between Health Locus of Control (HLOC) and quality of life among patients with diabetes mellitus. By identifying patients' HLOC, nurses can use it as a reference to foster motivation and improve the quality of life of diabetes mellitus patients.

II. METHODS

This study used a correlational research design. The purpose of the study was to examine the relationship between *Health Locus of Control* (HLOC) and quality of life

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among diabetes mellitus patients at Kaliwungu Health Center, Kudus. The study was conducted from February to March 2024. The research design employed a *cross-sectional* approach. In this design, data were collected at a single point in time to assess the relationship between the independent variable, *Health Locus of Control*, and the dependent variable, quality of life.

The population in this study consisted of 164 individuals. The sampling technique used was purposive sampling, taking into account inclusion and exclusion criteria. The inclusion criteria were (1) patients diagnosed with diabetes mellitus by a physician and having medical records at Kaliwungu Health Center, Kudus; (2) patients aged ≥ 18 years; and (3) patients able to communicate effectively. The exclusion criteria were: (1) diabetes mellitus patients with comorbidities or complications such as hypertension, diabetic gangrene, diabetic neuropathy (nerve disorders), and cataracts; and (2) patients who were not present during the study. Based on these criteria, a total of 48 respondents were included in the sample.

Data were collected using a guided interview technique with the Multidimensional Health Locus of Control (MHLC) questionnaire, which consists of 18 Likert-scale items based on the theory of Wallston et al. (1978) and modified into Indonesian by Hidayati (2017). This questionnaire is a valid instrument for the IHLC, PHLC, and CHLC subscales, with correlation coefficients (0.500–0.774; 0.432–0.803; 0.587–0.764) greater than the critical value of 0.361, and reliable with Cronbach's alpha values of 0.703, 0.715, and 0.791, respectively. The WHOQOL-BREF questionnaire was also used, which is valid (r = 0.89–0.95) and reliable (r = 0.66–0.87), consisting of 26 Likert-scale items. Data collection was conducted after obtaining research approval from the Kudus District Health Office. The process began with the selection of samples according to the inclusion and exclusion criteria, resulting in 48 respondents. These respondents were assessed for their Health Locus of Control and its relationship with quality of life using the questionnaires. The data were then processed using a laptop and analyzed statistically with the Spearman rank test.

Bivariate analysis in this study was conducted to determine the relationship between health locus of control and quality of life among diabetes mellitus patients at Kaliwungu Health Center, Kudus. The statistical test used in this study was the Spearman rho test. The Spearman rank test was applied if the requirements were met, namely a large sample size (>30 respondents) and categorical data (ordinal scale). The two variables were considered to have a significant relationship if the calculation yielded a p-value ≤ 0.05 at a 5% significance level.

III. RESULTS AND DISCUSSION

Based on the research data, the results obtained are as follows:

Table 1. Demographic Data of Respondents (n=48)

No	Demographic Data	f	%
1.	Age		
	18–40	4	8.3
	40–60	35	72.9
	> 60	9	18.8
2.	Gender		
	Man	12	25
	Woman	36	75
3.	Education		
	No school	2	4.2
	Elementary School	25	52.1
	Junior High School	11	22.9
	Senior High School	9	18.8
	Diploma	1	2.1
4.	Work		
	Doesn't work	5	10.4
	housewife	12	25
	Farmer	1	2.1
	Self-employed	6	12.5
	Laborer	21	43.8
	civil servant	1	2.1
	Other	2	4.2
5.	Long-term DM Suffering		
	< 6 months	11	22.9
	> 6 months	37	77.1
	Total	**48**	**100**

Source: Primary Data, 2024

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Based on Table 1, it is shown that the majority of respondents were aged 40–60 years, totaling 35 respondents (72.9%); female respondents accounted for 36 (75.0%); respondents with elementary school education were 25 (52.1%); respondents working as laborers were 21 (43.8%); and respondents who had suffered from diabetes for more than 6 months were 37 (77.1%).

Table 2. Frequency Distribution Based on Health Locus of Control (n=48)

Health Locus of Control	f	%
Low	8	16.7
Tall	40	83.3
Total	**48**	**100.0**

Source: Primary Data, 2024

Based on Table 2, it is shown that the majority of respondents had a high Health Locus of Control, totaling 40 respondents (83.3%).

Table 3. Frequency Distribution Based on Quality of Life

Quality of Life	f	%
Poor	9	18.8
Good	39	81.3
Total	**48**	**100.0**

Source: Primary Data, 2024

Based on Table 3, it is shown that the majority of respondents had a good quality of life, totaling 39 respondents (81.3%).

Table 4. Analysis of the Relationship between Health Locus of Control and Quality of Life in Diabetes Mellitus Patients

HLOC	Quality of Life		Total	*p-value*	*Rho*
	Poor (%)	Good (%)			
Low	4 (50%)	4 (50%)	8 (100%)	0.012	0.358
Tall	5 (12.5%)	35 (87.5%)	40 (100%)		
Total	9 (18.8%)	39 (81.3%)	48 (100%)		

Source: Primary Data, 2024

Based on Table 4, it was found that among respondents with a high Health Locus of Control (40 respondents), the majority had a good quality of life, totaling 35 respondents (87.5%). Among respondents with a low Health Locus of Control (8 respondents), the majority had a poor quality of life, totaling 4 respondents (50.0%). The results of the Spearman Rank analysis showed a p-value of 0.012 < 0.05, indicating a significant relationship between health locus of control and quality of life among diabetes mellitus patients at Kaliwungu Health Center, Kudus, at the 5% significance level. The Spearman's rho value of 0.358 indicates a weak positive correlation, meaning that the higher the Health Locus of Control, the better the quality of life.

Health Locus of Control

Based on the results of the study, it was found that the majority of respondents had a high Health Locus of Control, totaling 40 respondents (83.3%), while 8 respondents (16.7%) had a low Health Locus of Control. From these findings, it can be concluded that the number of respondents with a high health locus of control was greater than those with a low health locus of control.

The results of this study are consistent with the research conducted by Restuaji (2021), which showed that individuals with a high health locus of control are more motivated to make better decisions to improve their health status. The study, which used a literature review design, reported that internal Health Locus of Control was found in 3 articles (60.0%), while external Health Locus of Control was found in 2 articles (40.0%).

Another supporting study was conducted by Katuk (2019), entitled "The Relationship between Health Locus of Control and Insulin Therapy Adherence among Type II Diabetes Mellitus Patients at GMIM Pancaran Kasih Hospital, Manado." The findings indicated that the majority of respondents had an internal Health Locus of

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Control, totaling 26 respondents (65%), compared to the external Health Locus of Control with 14 respondents (35%).

From the analysis of these studies, it can be explained that diabetes mellitus patients at Kaliwungu Health Center, Kudus, demonstrated control over their health. There was no single dominant aspect; rather, all forms of control—self-control, reliance on others, and belief in fate, destiny, or luck—played a role in influencing their health behavior.

Quality of Life

Based on the results of the study, it was found that the majority of respondents had a good quality of life, with 39 respondents (81.3%), while 9 respondents (18.8%) were categorized as having a poor quality of life. From these findings, it can be concluded that the number of respondents with a good quality of life was higher than those with a poor quality of life.

A study conducted by Umam (2020), entitled "Overview of the Quality of Life of Patients with Diabetes Mellitus at Wanaraja Health Center," reported that quality of life in the physical domain was mostly in the moderate category (61.5%), the psychological domain was mostly in the moderate category (60.4%), the social relationships domain was mostly in the moderate category (58.2%), and the environmental domain was mostly in the moderate category (53.8%). Based on these data, it can be concluded that the majority of respondents had a moderate quality of life in terms of the physical, psychological, social relationships, and environmental domains.

Quality of life is one of the main goals of care, especially for patients with diabetes mellitus. If blood glucose levels are well controlled, physical complaints resulting from chronic complications can be prevented. A good quality of life can facilitate the treatment process of diabetes mellitus. A study conducted by Megawati & Suwantara (2019), entitled "Assessment of Four Dimensions of Quality of Life among Outpatient Type II Diabetes Mellitus (E14.9) Patients at Ari Canti General Hospital in 2018," showed that 7% of outpatient DM patients at RSUD Ari reported poor quality of life, and a small proportion (1%) reported very poor quality of life. Based on the study conducted on 100 respondents, it was found that the majority reported having a moderate quality of life and perceived their health condition as moderate.

The Relationship between Health Locus of Control and Quality of Life in Diabetes Mellitus Patients

The results of this study concluded that there is a significant relationship between Health Locus of Control and the quality of life of diabetes mellitus patients at Kaliwungu Health Center, Kudus, as indicated by p (0.012) < 0.05 at a 5% significance level. The strength of this relationship is weak with a positive direction, meaning that the higher the Health Locus of Control, the better the respondents' quality of life. This relationship is shown by the percentages: respondents with a high Health Locus of Control (40 respondents) were mostly found to have a good quality of life (35 respondents, 87.5%), while respondents with a low Health Locus of Control (8 respondents) were more frequently found to have a poor quality of life (4 respondents, 50.0%).

Kuniyo (2019) emphasized that Health Locus of Control is closely related to quality of life, where individuals with a good Health Locus of Control tend to have a better quality of life. The quality of life of diabetes mellitus patients is influenced by several factors, including dietary adherence, medication compliance, and family support. An individual's health locus of control is also influenced by their awareness of their health condition; when individuals have the intention to make changes in themselves, improvements in their quality of life can occur. The study involving 37 respondents showed that 25 respondents (67.6%) had a good quality of life, while 12 respondents (32.4%) had a poor quality of life. Improvements in quality of life among

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diabetes mellitus patients are influenced by both internal and external locus of control. Based on the Pearson chi-square test, the result obtained was ρ = 0.038; thus, Ha was accepted and Ho was rejected, leading to the conclusion that locus of control significantly affects quality of life.

A previous study conducted by Ramadhan (2019), entitled "The Relationship between Health Locus of Control and Quality of Life of Diabetes Mellitus Patients at Citra Husada Hospital, Jember," found that analysis using Spearman's rho test yielded a p-value of 0.003 with an alpha of 0.05. It was concluded that there is a relationship between health locus of control and quality of life in diabetes mellitus patients at Citra Husada Hospital, Jember. The correlation coefficient (r) was 0.512, indicating a moderate, positive correlation, meaning that a higher health locus of control is associated with a higher quality of life.

Similarly, a study by Putri (2023) reported that out of 48 respondents, the majority of respondents with a high health locus of control and good quality of life was 56.3%, with only 8.3% reporting a moderate quality of life. Meanwhile, most respondents with a low health locus of control reported a moderate quality of life (22.9%), and only 12.5% reported a good quality of life. The chi-square statistical test yielded a p-value of 0.001 ≤ 0.05, which indicates that Ho was rejected and Ha was accepted. It was therefore concluded that there is a significant relationship between health locus of control and quality of life among chronic kidney disease patients undergoing hemodialysis at Raja Ahmad Thabib Regional Hospital.

Research Limitations

The researcher acknowledges that this study has several shortcomings and limitations, including that the number of respondents, which was only 48, is insufficient to fully represent the actual condition. There were also limitations in terms of research time, energy, and the researcher's capability. Some respondents had limited ability to understand the questionnaire items, and honesty in filling out the questionnaire may have affected the accuracy of the results. During the data collection process, the information provided by respondents through the questionnaires did not always reflect their true opinions, which may have been influenced by differences in thoughts, perceptions, and understandings among respondents. In addition, the interviews and questionnaire completion were conducted during patients' waiting times, which restricted their ability to provide comprehensive responses to the researcher's questions.

IV. CONCLUSION

Based on the discussion in this study, the researcher concludes that there is a relationship between health locus of control and quality of life among diabetes mellitus patients at Kaliwungu Kudus Public Health Center, with a p-value of 0.012. The Rho value of 0.358 indicates that the strength of the relationship is weak, with a positive direction, meaning that the higher the Health Locus of Control, the better the quality of life.

It is expected that this study can serve as input and contribute to improving the quality of healthcare services that support interventions and enhance the quality of life of diabetes mellitus patients. For future researchers, the findings of this study may be developed further and in greater detail, thus serving as a foundation for subsequent studies, by employing different methodologies or research designs so that the results can contribute to the advancement of scientific knowledge.

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